WHAT IS CLAIMED IS:

1. An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

a plurality of process models, each model related to a physical implementation of an industrial process;

a model selection input configured to receive a selected model, the selected model uniquely identifying one of the process models;

a process signal input configured to receive a plurality of process signals related to the process; and

a root cause output indicative of a source of the aberration in the process, the root cause output a function of the selected model and the process signals.

2. The apparatus of claim 1 including a model options input configured to receive model options related to devices which are optional in the selected model, and wherein the root cause output is further a function of the model options.

3. The apparatus of claim 2 wherein the model options comprise process signals.

4. The apparatus of claim 1 wherein each model includes a rule base.

5. The apparatus of claim 4 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

6. The apparatus of claim 4 wherein each model includes a plurality of rule bases, each rule base related to the number of process signals.

7. The apparatus of claim 1 wherein the apparatus is implemented in a PC.

8. The apparatus of claim 1 wherein the apparatus is implemented in a process device.

9. The apparatus of claim 8 wherein the process device comprises a transmitter.

10. The apparatus of claim 8 wherein the process device comprises a controller.

11. The apparatus of claim 1 wherein the model includes a graphical model which provides a graphical representation of the physical implementation of the process.

12. The apparatus of claim 1 wherein the plurality of process signals comprise a primary process

variable (PV), a control demand (CD) signal, and a setpoint (SP).

13. The apparatus of claim 12 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

12. The apparatus of claim 10 wherein the plurality of process signals further includes a redundant primary process variable (PV).

13. The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

14. The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

15. A diagnostic method in an industrial process for identifying a root cause of an aberration in an industrial process, comprising:

selecting a process mode from a plurality of process models, each model related to a physical implementation of an industrial process, the selected model uniquely identifying one of the process models;

receiving a plurality of process signals related to the process; and

identifying a root cause indicative of a source of the aberration in the process, the identifying as a function of the selected model and the process signals.

16. The method of claim 15 including receiving model options related to devices which are optional in the selected model, and wherein identifying the root cause is further a function of the model options.

17. The method of claim 16 wherein the model options comprise process signals.

18. The method of claim 15 wherein each model includes a rule base.

19. The method of claim 18 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

20. The method of claim 18 wherein each model includes a plurality of rule bases, each rule base related to the number of process signals.

21. A PC implementing the method of claim 15.

22. A process device implementing the method of claim 15.

23. The method of claim 15 wherein the model includes a graphical model and the method including displaying a graphical representation of the physical implementation of the process.

24. The method of claim 15 wherein the plurality of process signals comprise a primary process variable (PV), a control demand (CD) signal, and a setpoint (SP).

25. The method of claim 24 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

26. The method of claim 24 wherein the plurality of process signals further includes a redundant primary process variable (PV).

27. The method of claim 15 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

28. The method of claim 15 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

29. A storage medium containing computer instructions configured to implement the method of claim 1.

30. An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

means for storing a plurality of process models, each model related to a physical implementation of an industrial process;

means for receiving a model selection input uniquely identifying one of the process models;

means for receiving a plurality of process signals related to the process; and

means for identifying a root cause indicative of a source of the aberration in the process as a function of the selected model and the process signals.